Amendments to the Claims

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Withdrawn) A vapor deposition source for use in vacuum chamber for coating an organic layer on a substrate of an OLED device, comprising:

(a) a manifold including side and bottom walls defining a chamber for receiving organic material, and an aperture plate disposed between the side walls, the aperture plate having a plurality of spaced apart apertures for emitting vaporized organic material;

(b) the aperture plate including conductive material which in response to an electrical current produces heat;

(c) means for heating the organic material to a temperature which causes its vaporization, and heating the side walls of the manifold; and

(d) an electrical insulator coupling the aperture plate to the side walls for concentrating heat in the unsupported region of the aperture plate adjacent to the apertures, whereby the distance between the aperture plate and the substrate can be reduced to provide high coating thickness uniformity on the substrate.

2. (Withdrawn) The vapor deposition source of claim 1 wherein the aperture plate and the manifold includes a high-emissivity material coating that radiates energy into the chamber and a low-emissivity material coating that radiates less energy to the substrate.

3. (Withdrawn) The vapor deposition source of claim 1 wherein the means for heating includes a high-emissivity material coating that radiates energy into the chamber.

4. (Withdrawn) The vapor deposition source of claim 1 wherein the manifold is shaped so that the aperture plate is closest to the substrate.

5. (Withdrawn) The vapor deposition source of claim 4 further including a radiation shield spaced closely to the apertures to minimize the area of the manifold radiating energy to the substrate while minimizing the risk of the shields becoming covered with condensed organic material.

6. (Withdrawn) The vapor deposition source of claim 1 wherein the region immediately adjacent to each aperture is heated to a slightly higher temperature than any other portion of the aperture plate or manifold to minimize clogging of the apertures.

7. (Withdrawn) The vapor deposition source of claim 1 including a second heating means for heating the bulk of the organic material to a temperature below its vaporization temperature, and heating the lower portion of the manifold.

8. (Withdrawn) The vapor deposition source of claim 7 wherein the temperature of the manifold chamber is controlled by the first means for heating and the lower portion of the manifold chamber is actively controlled by the second heating means to be uniform along its length and width and to be the coolest portion of the source in contact with the organic material.

9. (Withdrawn) A vapor deposition source for use in vacuum chamber for coating an organic layer on a substrate of an OLED device, comprising:

(a) a manifold including side and bottom walls defining a chamber for receiving organic material, and an aperture plate disposed between the side walls, the aperture plate having a plurality of spaced apart apertures for emitting vaporized organic material;

(b) the aperture plate including conductive material which in response to an electrical current produces heat;

(c) means for heating the side walls of the manifold and thereby heating the organic material to a temperature which causes its vaporization; and

(d) an electrical insulator coupling the aperture plate to the side walls for concentrating heat in the unsupported region of the aperture plate adjacent to the apertures, whereby the distance between the aperture plate and the substrate can be reduced to provide high coating thickness uniformity on the substrate.

10. (Withdrawn) The vapor deposition source of claim 9 wherein the aperture plate includes a high-emissivity material coating that radiates energy into the chamber and a low-emissivity material coating that radiates less energy to the substrate.

11. (Withdrawn) The vapor deposition source of claim 9 wherein the means for heating includes a high-emissivity material coating that radiates energy into the chamber.

12. (Withdrawn) The vapor deposition source of claim 9 wherein the manifold is shaped so that the aperture plate is closest to the substrate.

13. (Withdrawn) The vapor deposition source of claim 12 further including a radiation shield spaced closely to the apertures to minimize the area of the manifold radiating energy to the substrate while minimizing the risk of the shields becoming covered with condensed organic material.

14. (Withdrawn) The vapor deposition source of claim 9 wherein the region immediately adjacent to each aperture is heated to a slightly higher temperature than any other portion of the aperture plate to minimize clogging of the apertures.

15. (Withdrawn) The vapor deposition source of claim 9 including a second heating means for heating the bulk of the organic material to a temperature below its vaporization temperature, and heating the lower portion of the manifold.

16. (Withdrawn) The vapor deposition source of claim 15 wherein the temperature of the manifold chamber is controlled by the first means for heating and the lower portion of the manifold chamber is actively controlled by the second heating means to be uniform along its length and width and to be the coolest portion of the source in contact with the organic material.

17. (Currently Amended) A method for coating an organic layer ~~on~~ onto a substrate in a vacuum chamber comprising:

(a) providing a manifold including side and bottom walls defining a chamber for receiving organic material, and an aperture plate disposed between the side walls, the aperture plate having a plurality of spaced apart apertures for emitting vaporized organic material; the aperture plate including conductive material which in response to an electrical current produces heat;

(b) heating the organic material to a temperature which causes its vaporization, and heating the side walls of the manifold, the aperture plate includes a first aperture plate emissive surface that radiates energy into the chamber and a second aperture plate emissive surface that radiates less energy to

the substrate wherein the second aperture plate emissive surface has an emissivity lower than the first aperture plate emissive surface; and

(c) concentrating heat in ~~the~~ an unsupported region of the aperture plate adjacent to the apertures by providing an electrical insulator coupling the aperture plate to the side walls~~, whereby the distance between the aperture plate and the substrate can be reduced to provide high coating thickness uniformity on the substrate~~.

18. (Cancelled)

19. (Cancelled)

20. (Original) The method of claim 17 including shaping the manifold so that the aperture plate is closest to the substrate.

21. (Currently Amended) The method of claim 20 further including a radiation shield spaced closely to the apertures to ~~minimize~~ reduce the area of the manifold radiating energy to the substrate while ~~minimizing~~ reducing the risk of the shields becoming covered with condensed organic material.

22. (Currently Amended) The method of claim 17 wherein the region immediately adjacent to each aperture is heated to a slightly higher temperature than any other portion of the aperture plate or manifold to ~~minimize~~ reduce clogging of the apertures.

23. (Currently Amended) The method of claim 17 includes heating the bulk of the organic material to a temperature below its vaporization temperature, and heating the lower portion of the manifold.

24. (New) The method of claim 17 further including providing a first manifold emissive surface on the manifold that radiates energy into the chamber and a second manifold emissive surface on the manifold that radiates energy outside of the chamber wherein the emissivity of the first manifold emissive surface is greater than theemissivity of the second manifold surface.